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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,818	03/22/2006	Guillaume Bichot	PU030279	3745
24498	7590	11/10/2008		
Joseph J. Laks			EXAMINER	
Thomson Licensing LLC			BEYEN, ZEWDU A	
2 Independence Way, Patent Operations				
PO Box 5312			ART UNIT	
PRINCETON, NJ 08543			PAPER NUMBER	
			4144	
			MAIL DATE	
			DELIVERY MODE	
			11/10/2008	
			PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/572,818

Applicant(s)

BICHOT ET AL.

Examiner

ZEWDU BEYEN

Art Unit

4144

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-34 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 22 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8500)
Paper No(s)/Mail Date 03/22/2006, and 07/07/2008
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Inventor's Patent Application
6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-34 have been examined and are pending.

Information Disclosure Statement

2. An initialed and dated copy of Applicant's IDS form 1449 submitted 03/22/2006, and 07/07/2008, are attached to the instant Office action.

Claim Objections

3. Claim 11 is objected to because of the following informalities: "ID" should be spell out as intermediate. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim1-5 and 13-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding independent claims 1 and 13, it is not clear how first user device knows if the second user device is neither in a unicast session nor in the coverage area.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-3, 5, 13-15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khan to (20020143951), Sinnarajah to (20040131075), Lee to (20070226577), Leung to (20030078044), and further in view of Applicant admitted prior art "AAPA"

Regarding claims 1 and 13, Khan teaches a method for receiving a multicast transmission in user devices in a network, the method comprising:

receiving, by an intermediate device, a request from a first user device to join a multicast group (Khan, [0030] discloses unicast client join a multicast group by sending a special "unicast join" control message 505 to a source server)

Khan silent on identifying multicast data packets associated with said multicast group; monitoring transmissions of said multicast data packets from said intermediate device, by said first user device, to determine whether said identified multicast data packets are being transmitted between said intermediate device and a second user device in an already established unicast session between said second user device and said intermediate device;

processing said multicast data packets by said second user device, if said second user device is in said already established unicast session between said second user device and said intermediate device;

and establishing a unicast session between said first user device and said intermediate device and switching to normal mode and processing multicast data packets by said first user device, if one of said second user device is not in said already established unicast session and said first user device is no longer in a coverage area for receiving transmissions between said second user device and said intermediate device.

Sinnarajah teaches **identifying multicast data packets associated with said multicast group**

([0065], discloses MS-1 monitoring multicast call corresponding to identifier GROUP-IDx);

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan, by identifying multicast data packets associated with said multicast group as suggested by Sinnarajah. This modification would benefit the system of Khan by allowing the device to know if the multicast data corresponding to it.

Lee, teaches monitoring transmissions of said multicast data packets between said intermediate device and said dedicated terminal by said user devices

([0037], discloses multicasting retransmission requests and replies more effective.

Note, in order for the user device to receive all transmissions addressed to it, the user device will have to be monitor the transmission medium to determine which messages are addressed to it)

processing said multicast data packets by said dedicated terminal ([0037], discloses multicasting retransmission requests and replies more effective)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan- Sinnarajah, by monitoring transmissions of said multicast data packets between said intermediate device and said dedicated terminal by said user devices as suggested by Lee. This modification would benefits the system of Khan-Sinnarajah in order for the user device to receive all transmissions addressed to it, the user device will have to be monitor the transmission medium to determine which messages are addressed to it

AAPA teaches **processing said multicast data packets by said second user device** (pg. 2 line 19), **if said second user device is in said already established unicast session between said second user device and said intermediate device (pg. 2 lines 6-7)** .AAPA also teaches **establishing a unicast session between said first user device and said intermediate device (pg. 2 lines 6-7)**.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan- Sinnarajah-Lee, by processing said multicast data packets by said second user device, if said second user device is in said already established unicast session between said second user device and said intermediate device, as suggested by AAPA. This modification would benefit the system of Khan- Sinnarajah-Lee by improving efficiency regarding processing transmitted packets.

Leung, teaches switching to a normal mode and **processing multicast data packets by a first device if a second device is no longer in a coverage area** (fig. 2, [0052], disclose if the subscriber station crosses boundaries from a coverage area of SHO Group 1 202 to a coverage area of SHO Group 2 204, a hard handoff is required)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan- Sinnarajah-Lee-AAPA, by processing packets by a first device if a second device is no longer in a coverage

area, as suggested by Leung. This modification would benefit the combination by providing technique to improve efficiency in processing packets.

Regarding claims 2 and 14, the combination of Khan- Sinnarajah-Lee-AAPA- Leung teach the method according to **claim 1, further comprising: testing to determine if said second user device is still active** (Khan, [0033] discloses a unicast client may leave a multicast group by failing to respond to a multicast group query either initiated by a router or initiated by an agent)

performing one of continuing to receive multicast data packets via said already established unicast session (Khan, [0030] discloses unicast client join a multicast group by sending a special "unicast join" control message 505 to a source server. In addition, the abstract discloses the agents repackage the multicast information into a unicast data packet and forward the unicast data packet to a client registered with the agent) **and selecting another dedicated terminal by said intermediate device with which said intermediate device establishes a new unicast session** (Khan, [0033] discloses if an attached unicast client does not respond to the agent's query message, the agent may stop forwarding multicast packets to the client(then continue to forward for unicast clients that are responsive) . The agent also poll or send a query to its attached unicast clients to determine which multicast groups the agent needs to belong to and to whom the agent needs to forward information from those multicast groups)

Regarding claims 3 and 15, the combination of Khan- Sinnarajah-Lee-AAPA- Leung teach the method according to claim 1, wherein said transmission of multicast data packets occurs in a local area network (Khan, [0004], and fig.2 disclose LAN, however it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the combination by replacing the LAN by WLAN to improve transmission efficiency)

Regarding claims 5 and 17, the combination of Khan- Sinnarajah-Lee-AAPA- Leung teach the method according to claim 1, wherein said request to join said multicast group is made via an Internet group management protocol request (Khan,[0029] discloses a new multicast client may join a multicast group using conventional means in the same manner that an agent may join a multicast group. New multicast clients and new agents transmit an IGMP join message)

9. Claims 4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khan to (20020143951), Sinnarajah to (20040131075), Lee to (20070226577), Leung to (20030078044), "AAPA", and further in view of Chow to (200300534340)

Regarding claims 4 and 16, the combination of Khan- Sinnarajah-Lee-AAPA- Leung silent on the method according to claim 1, wherein all user devices in said multicast group operate in monitor mode except said user device that is active in said unicast

session, said user device that is active in said unicast session operates in normal mode

Chow, teaches wherein all user devices in said multicast group operate in monitor mode except said user device that is active in said unicast session, said user device that is active in said unicast session operates in normal mode ([0133], fig.5 disclose the rest of the multicast group are in listen-mode while one of them on push-to-talk mode)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan- Sinnarajah-Lee-AAPA- Leung by wherein all user devices in said multicast group operate in monitor mode except said user device that is active in said unicast session, said user device that is active in said unicast session operates in normal mode, as suggested by Chow. This modification would benefit the combination by providing a technique to improve transmission quality.

10. Claims 6, 18, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khan to (20020143951), Sinnarajah to (20040131075), and further in view of Lee to (20070226577).

Regarding claims 6, 18, and 27, Khan teaches **establishing a unicast session between said intermediate device and a dedicated terminal** ([0030], discloses

unicast client join a multicast group by sending a special "unicast join" control message 505 to a source server)

Although Khan teaches establishing a unicast session for transmission of multicast packets, the reference is silent on identifying multicast data packets associated with said multicast group ; monitoring transmissions of said multicast data packets between said intermediate device and said dedicated terminal by said user devices; and processing said multicast data packets by said dedicated terminal.

However, Sinnarajah teaches **identifying multicast data packets associated with said multicast group** ([0065], discloses MS-1 monitoring multicast call corresponding to identifier GROUP-IDx);

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan by having the terminals identify multicast data packets associated with said multicast group by having the packets encoded with a group identifier, as shown by Sinnarajah. This modification would benefit the system by providing a method for the terminals to identify packets that are addressed to it.

Lee, teaches **monitoring transmissions of said multicast data packets between said intermediate device and said dedicated terminal by said user devices**

([0037] discloses multicasting retransmission requests and replies more effective for networks with higher loss rate and correlated packet losses.) Note, in order for the user device to receive all transmissions addressed to it, the user device will have to be monitor the transmission medium to determine which messages are addressed to it.

processing said multicast data packets by said dedicated terminal ([0037], discloses multicasting retransmission requests)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan-Sinnarajah by monitoring transmissions of said multicast data packets; and processing said multicast data packets by said dedicated terminal, as shown by Lee. This modification would benefit the system if the system is in a network with higher loss rate and correlated packet losses, e.g. Internet (Lee: [0037]).

Regarding claims 7 and 19, the combination of Khan- Sinnarajah-Lee teach the method according to claim 6, further comprising:

testing to determine if a wake-up message is received from said dedicated terminal (Khan, [0033] discloses a unicast client may leave a multicast group by failing to respond to a multicast group query either initiated by a router or initiated by an agent. The agent poll or query its attached clients (i.e., the unicast clients for whom the agent has been designated to provide multicast service))

performing one of continuing to receive multicast data packets via said already established unicast session (Khan, [0030] discloses unicast client join a multicast group by sending a special "unicast join" control message 505 to a source server. In addition, the abstract discloses the agents repackage the multicast information into a unicast data packet and forward the unicast data packet to a client registered with the agent)

and selecting another dedicated terminal by said intermediate device with which said intermediate device establishes a new unicast session (Khan, [0033]

discloses If an attached unicast client does not respond to the agent's query message, the agent may stop forwarding multicast packets to the client(then continue to forward for unicast clients that are responsive). The agent also poll or send a query to its attached unicast clients to determine which multicast groups the agent needs to belong to and to whom the agent needs to forward information from those multicast groups)

Regarding claims 8 and 20, the combination of Khan- Sinnarajah-Lee teach the method according to claim 6, **wherein said transmission of multicast/broadcast data packets occurs in local area network** (Khan, [0004], and fig.2, disclose LAN, however it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the combination by replacing the LAN by WLAN to improve transmission efficiency)

Regarding claims 10 and 22, the combination of Khan- Sinnarajah-Lee teach the method according to claim 6, **wherein a plurality of unicast sessions are established in order to support multiple transmission rates** (Khan, fig.4 discloses plurality of unicast sessions)

Regarding claims 11 and 23, the combination of Khan- Sinnarajah-Lee teach the method according to claim 10, wherein **said plurality of unicast sessions are between said ID and a plurality of dedicated terminals**(Khan,fig.4 discloses plurality of unicast sessions)

Regarding claims 12 and 24, the combination of Khan- Sinnarajah-Lee teach the method according to claim 6, **wherein said intermediate device is a router** (Khan, fig.2 discloses router that interconnect unicast clients with multicast group)

11. Claims 9, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khan to (20020143951), Sinnarajah to (20040131075), Lee to (20070226577), and further in view of Chow to (200300534340)

Regarding claims 9 and 21 the combination of Khan- Sinnarajah-Lee silent on the method according to claim 6, wherein all user devices in said multicast group operate in monitor mode and said dedicated terminal operates in normal mode

Chow, teaches wherein all user devices in said multicast group operate in monitor mode and said dedicated terminal operates in normal mode ([0133], fig.5 disclose the rest of the multicast group are in listen-mode while one of them on push-to-talk mode)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan- Sinnarajah-Lee by wherein all user devices in said multicast group operate in monitor mode and said dedicated terminal operates in normal mode, as suggested by Chow, for the same reasoning the examiner supplied in claims 4 and 16 above.

12. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Khan to (20020143951), Sinnarajah to (20040131075), Lee to (20070226577), and further in view of "AAPA"

Regarding claim 25, Khan teaches issuing a request to join a multicast group (Khan, [0030] discloses unicast client join a multicast group by sending a special "unicast join" control message 505 to a source server)

Khan, silent on identifying multicast data packets associated with said multicast group; monitoring transmissions of said multicast data packets to determine whether said

identified multicast data packets are being transmitted in an already established unicast session; and establishing a unicast session and processing multicast data packets if an already established unicast session does not exist.

However, Sinnarajah teaches **identifying multicast data packets associated with said multicast group** ([0065], discloses MS-1 monitoring multicast call corresponding to identifier GROUP-IDx);

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan by having the terminals identify multicast data packets associated with said multicast group by having the packets encoded with a group identifier, as shown by Sinnarajah. This modification would benefit the system by providing a method for the terminals to identify packets that are addressed to it.

Lee, teaches **monitoring transmissions of said multicast data packets between said intermediate device and said dedicated terminal by said user devices** ([0037], discloses multicasting retransmission requests and replies more effective. Note, in order for the user device to receive all transmissions addressed to it, the user device will have to be monitor the transmission medium to determine which messages are addressed to it)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan-Sinnarajah by **monitoring transmissions of said multicast data packets between said intermediate device and said dedicated terminal by said user devices**, as suggested by Lee. This modification would benefit the system if the system is in a network with higher loss rate and correlated packet losses, e.g. Internet (Lee: [0037]).

AAPA teaches **establishing a unicast session and processing said multicast data packets by said second user device** (pg. 2 line 19), **if an already established unicast session does not exist** (intermediate device , pg. 2 lines 6-7).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan-Sinnarajah –Lee by establishing a unicast session and processing multicast data packets if an already established unicast session does not exist, as suggested by AAPA. This modification would benefit the system since the modification is part of the 802.11 standard and adhering to existing standards would make the system more easily incorporated into larger systems.

Regarding claim 26, the combination of Khan- Sinnarajah-Lee-AAPA teach the method according to claim 25, further comprising:

testing to determine if said already established unicast session is still

active(Khan, [0033], discloses a unicast client may leave a multicast group by failing to respond to a multicast group query either initiated by a router or initiated by an agent. The agent poll or query its attached clients (i.e., the unicast clients for whom the agent has been designated to provide multicast service))

performing one of continuing to receive multicast data packets via said already

established unicast session (Khan, [0030] discloses unicast client join a multicast group by sending a special "unicast join" control message 505 to a source server. In addition, the abstract discloses the agents repackage the multicast information into a unicast data packet and forward the unicast data packet to a client registered with the agent)

and selecting another dedicated terminal by said intermediate device with which said intermediate device establishes a new unicast session (Khan, [0033]

discloses If an attached unicast client does not respond to the agent's query message, the agent may stop forwarding multicast packets to the client(then continue to forward for unicast clients that are responsive) . The agent also poll or send a query to its attached unicast clients to determine which multicast groups the agent needs to belong to and to whom the agent needs to forward information from those multicast groups)

Regarding claim 28, the combination of Khan-Sinnarajah- Lee teach the method according to claim 27, further comprising: **testing to determine if a wake-up message is received from said dedicated terminal**(Khan, [0033], discloses a unicast client may leave a multicast group by failing to respond to a multicast group query either initiated by a router or initiated by an agent. The agent poll or query its attached clients (i.e., the unicast clients for whom the agent has been designated to provide multicast service))

performing one of continuing to receive multicast data packets via said already established unicast session (Khan, [0030] discloses unicast client join a multicast group by sending a special "unicast join" control message 505 to a source server. In addition, the abstract discloses the agents repackage the multicast information into a unicast data packet and forward the unicast data packet to a client registered with the agent)

and selecting another dedicated terminal by said intermediate device with which said intermediate device establishes a new unicast session (Khan, [0033] discloses If an attached unicast client does not respond to the agent's query message, the agent may stop forwarding multicast packets to the client(then continue to forward for unicast clients that are responsive) . The agent also poll or send a query to its attached unicast clients to determine which multicast groups the agent needs to belong to and to whom the agent needs to forward information from those multicast groups)

15. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Khan to (20020143951), and further in view of Sinnarajah to (20040131075)

Regarding claim 29, Khan teaches means for accepting a request to join a multicast group (Khan, [0030] discloses unicast client join a multicast group by sending a special "unicast join" control message 505 to a source server)

means for encapsulating said multicast data packets in a unicast frame (Khan ,abstract, The agents repackage the multicast information into a unicast data packet and forward the unicast data packet to a client registered with the agent)

means for establishing a unicast session ([0030], discloses unicast client join a multicast group by sending a special "unicast join" control message 505 to a source server);

means for forwarding said unicast frame via said unicast session (abstract, The agents repackage the multicast information into a unicast data packet and forward the unicast data packet to a client registered with the agent)

Khan silent on **means for identifying multicast data packets associated with said multicast group**

However, Sinnarajah teaches **means for identifying multicast data packets associated with said multicast group** ([0065], discloses MS-1 monitoring multicast call corresponding to identifier GROUP-IDx);

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan by having the terminals identify multicast data packets associated with said multicast group by having the packets encoded with a group identifier, as shown by Sinnarajah. This modification would benefit the system by providing a method for the terminals to identify packets that are addressed to it.

16. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Khan to (20020143951), and further in view of Sinnarajah to (20040131075)

Regarding claim 32, Khan teaches **means for establishing a unicast session with said multicast-to-unicast converter** (Khan, [0030] discloses unicast client join a multicast group by sending a special "unicast join" control message 505 to a source server)

means for encapsulating said multicast data packets in a unicast frame(Khan, abstract The agents repackage the multicast information into a unicast data packet)

and means for forwarding said unicast frames via said unicast session(Khan, abstract discloses the agents repackage the multicast information into a unicast data packet and forward the unicast data packet to a client registered with the agent)

Khan, silent on **means for identifying multicast data packets associated with a multicast group**

However, Sinnarajah teaches **means for identifying multicast data packets associated with a multicast group** ([0065] discloses, MS-1 monitoring multicast call corresponding to identifier GROUP-IDx);

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Khan by having the terminals identify multicast data packets associated with said multicast group by having the packets encoded with a group identifier, as shown by Sinnarajah. This modification would benefit the system by providing a method for the terminals to identify packets that are addressed to it.

Regarding claim 30, the combination of Khan- Sinnarajah teach the multicast-to-unicast converter according to claim 29, further comprising:

testing to determine if said established unicast session is still active; (Khan, [0033], discloses a unicast client may leave a multicast group by failing to respond to a multicast group query either initiated by a router or initiated by an agent. The agent poll or query its attached clients (i.e., the unicast clients for whom the agent has been designated to provide multicast service))

performing one of continuing to receive multicast data packets via said already established unicast session (Khan, [0030] discloses unicast client join a multicast group by sending a special "unicast join" control message 505 to a source server. In addition, the abstract discloses the agents repackage the multicast information into a unicast data packet and forward the unicast data packet to a client registered with the agent)

and selecting another dedicated terminal by said intermediate device with which said intermediate device establishes a new unicast session (Khan, [0033] discloses If an attached unicast client does not respond to the agent's query message, the agent may stop forwarding multicast packets to the client(then continue to forward for unicast clients that are responsive) . The agent also poll or send a query to its

attached unicast clients to determine which multicast groups the agent needs to belong to and to whom the agent needs to forward information from those multicast groups)

Regarding claim 31, the combination of Khan- Sinnarajah teach the multicast-to-unicast converter according to claim 29, wherein said transmission of multicast data packets occurs in one of a local area network (Khan, [0004], and fig.2 disclose LAN, however it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of the combination by replacing the LAN by WLAN to improve transmission efficiency)

Regarding claim 33, the combination of Khan- Sinnarajah teach the multicast-to-unicast converter according to claim 32, further comprising:

means for testing to determine if a wake-up message is received (Khan, [0033], discloses a unicast client may leave a multicast group by failing to respond to a multicast group query either initiated by a router or initiated by an agent. The agent poll or query its attached clients (i.e., the unicast clients for whom the agent has been designated to provide multicast service))

performing one of continuing to receive multicast data packets via said already established unicast session (Khan, [0030] discloses unicast client join a multicast

group by sending a special "unicast join" control message 505 to a source server. In addition, the abstract discloses the agents repackage the multicast information into a unicast data packet and forward the unicast data packet to a client registered with the agent)

and selecting another dedicated terminal by said intermediate device with which said intermediate device establishes a new unicast session (Khan, [0033]

discloses If an attached unicast client does not respond to the agent's query message, the agent may stop forwarding multicast packets to the client(then continue to forward for unicast clients that are responsive) . The agent also poll or send a query to its attached unicast clients to determine which multicast groups the agent needs to belong to and to whom the agent needs to forward information from those multicast groups)

Regarding claim 34, the combination of Khan- Sinnarajah teach the multicast-to-unicast converter according to claim 32, wherein a plurality of unicast sessions are established in order to support multiple transmission rates (Khan,fig.4 discloses plurality of unicast sessions)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zewdu Beyen whose telephone number is (571)-270-7157. The examiner can normally be reached on 8:00-5:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Taghi T. Arani can be reached on (571) 272-3787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ZEWDU BEYEN/
Examiner, Art Unit 4144

/RONALD ABELSON/
Primary Examiner, Art Unit 2419